

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Preliminary lithologic and mineralogical data
from the Delhi-Taylor Oil Company, Cane Creek No. 1 corehole,
Grand County, Utah.

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This report is preliminary and has not been edited or reviewed for conformity with U. S. Geological Survey standards and stratigraphic nomenclature.

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INTRODUCTION

The Delhi-Taylor Oil Company, Cane Creek No. 1 core hole (CC-1) was drilled near the crest of the Cane Creek anticline, Grand County, Utah in section 25, T26S, R20E, (fig. 1). The total depth of the hole was 2805 ft (855 m), and the cored interval included four of the upper five evaporite cycles of the Paradox Member of the Hermosa Formation of Middle Pennsylvanian (Desmoinesian) age. Coring started at 1840 ft (561 m) in limestone of the Honaker Trail Member of the Hermosa Formation.

Each complete evaporite cycle in the upper part of the Paradox Member of the Hermosa Formation in the Cane Creek core contains a halite bed underlain by a sequence of penesaline and siliciclastic rocks that we refer to collectively as interbeds. Twenty nine cycles have been identified and numbered from top to bottom of the Paradox Member by R. J. Hite (Hite, 1960, p. 86-89). The cycles are separated by erosional or dissolution disconformities that are characterized by sharp, "knife-edge" contacts at the base of the interbeds and the top of the halite beds (Hite, 1970; Hite and Buckner, 1981).

GENERAL CORE DESCRIPTION

The rocks of cycle 1 are represented in this core hole by anhydrite, silty dolomite, organic carbon-rich carbonate shale (black shale), and some limestone, above the halite bed of cycle 2. The halite bed of cycle 1, which is present in the northeast part of the basin (depocenter), is absent at this location.

The upper part of cycle 2 contains a bed of halite that is 171.3 ft (52.2 m) thick and is underlain by interbed units that are 110.2 ft (33.6 m) thick. The vertical distribution of the lithologies in the interbeds is remarkably symmetrical and complete. This interval contains anhydrite, silty dolomite, and black shale. The basal anhydrite contains a thin unit of black shale.

The upper part of cycle 3 contains a bed of halite that is 133.8 ft (40.8 m) thick which is underlain by interbeds that are 106 ft (32.3 m) thick. Like cycle 2, these interbeds are vertically symmetrical with respect to lithology. The base of this interval is anhydrite, overlain successively by silty dolomite, black shale, silty dolomite, and anhydrite.

The halite bed at the top of cycle 4 is 179.5 ft (54.7 m) thick. It overlies interbeds that are only 37 ft (11.3 m) thick. In addition to being thin, this interval does not have the regular vertical symmetry as those of cycles 2 and 3. The beds of these lithologies are thin and repetitious.

The halite bed of cycle 5, and only 1 m of anhydrite in the underlying interbed was drilled in this core hole. The halite bed is 127.3 ft (38.8 m) thick. A bed of sylvinites (crystalline intergrowth of sylvite and halite), approximately 11.8 ft (3.6 m) thick, occurs near the top of this halite bed. The Texasgulf Corporation has been mining this potash deposit near Moab, Utah, since 1964.

Figure 2 is a generalized stratigraphic column of the Cane Creek No. 1 core hole.

ologic column of the Cane Creek No. 1 core, at a scale of 10 ft /
tion of the lithologies. Details of the lithologies have been
accomodate the scale.

es the mineralogic composition of the rocks in the interbeds in the
Mineralogy was determined semiquantitatively by X-ray
of the minerals were determined by comparing major peak heights to
d standards.

ution studies have been made on the four halite beds in this core
of the chemistry of the various lithologies in this core as well as
their interpretations will be published in papers that are now in

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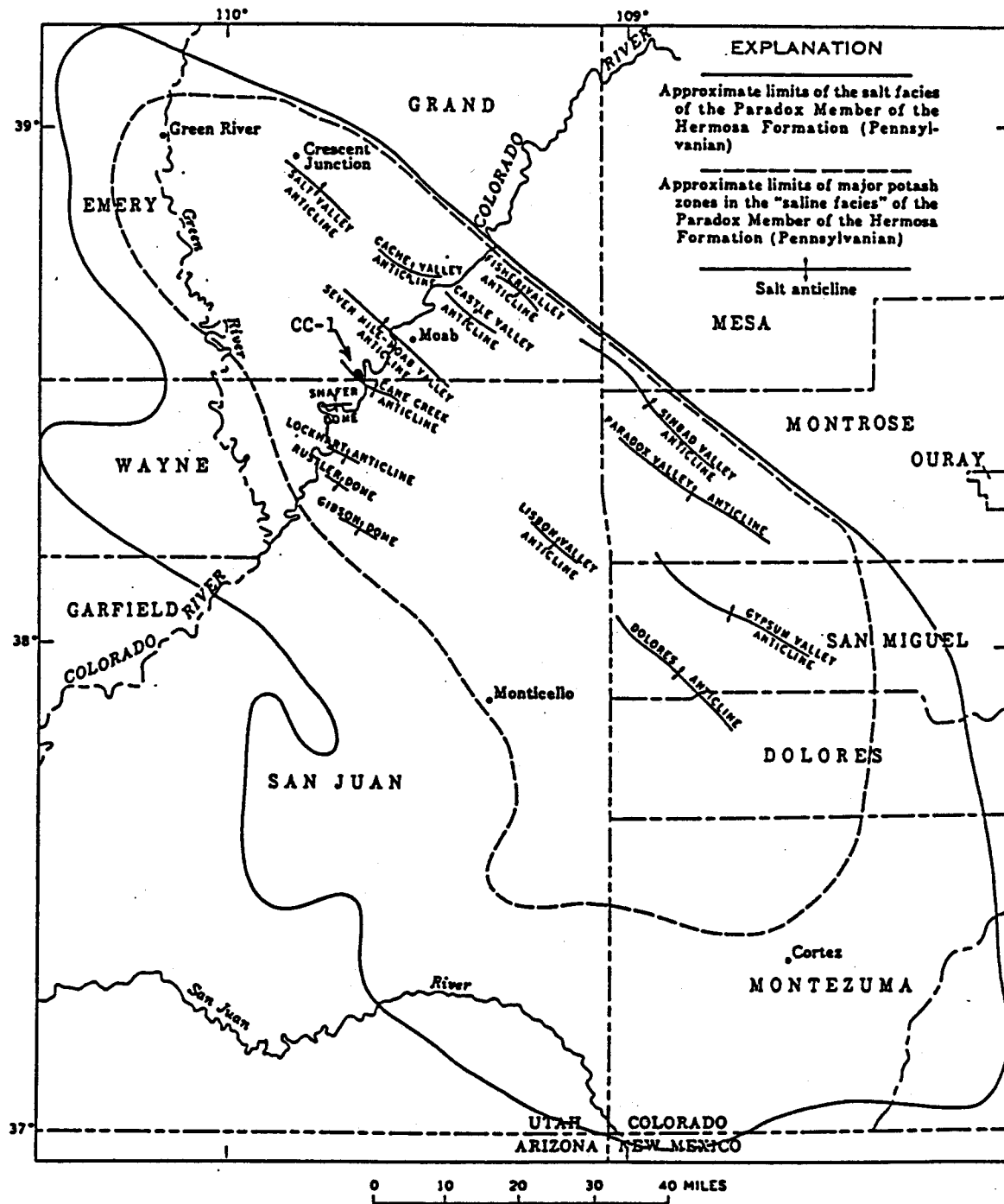


Figure 1. Index map of the Paradox basin, southwestern Colorado and southeastern Utah, showing the location of the Delhi-Taylor Oil Company, Cane Creek No. 1 (CC-1) core hole. Limits of salt and potash from Hite (1961).

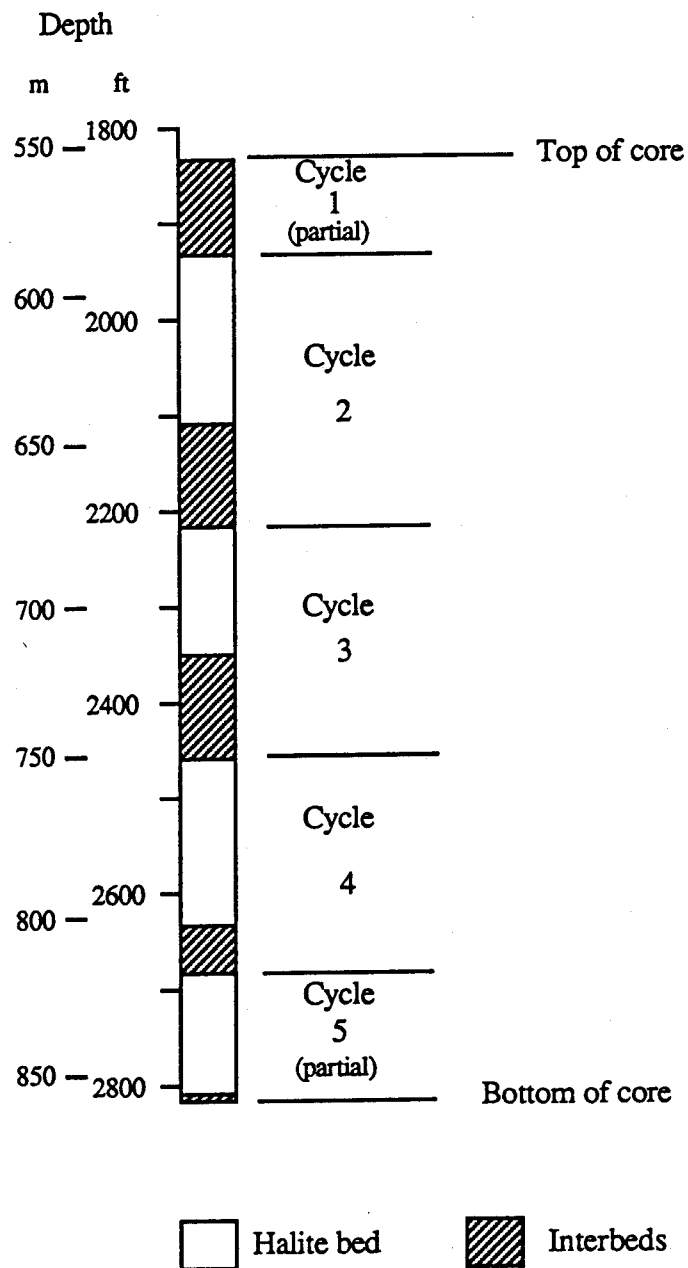
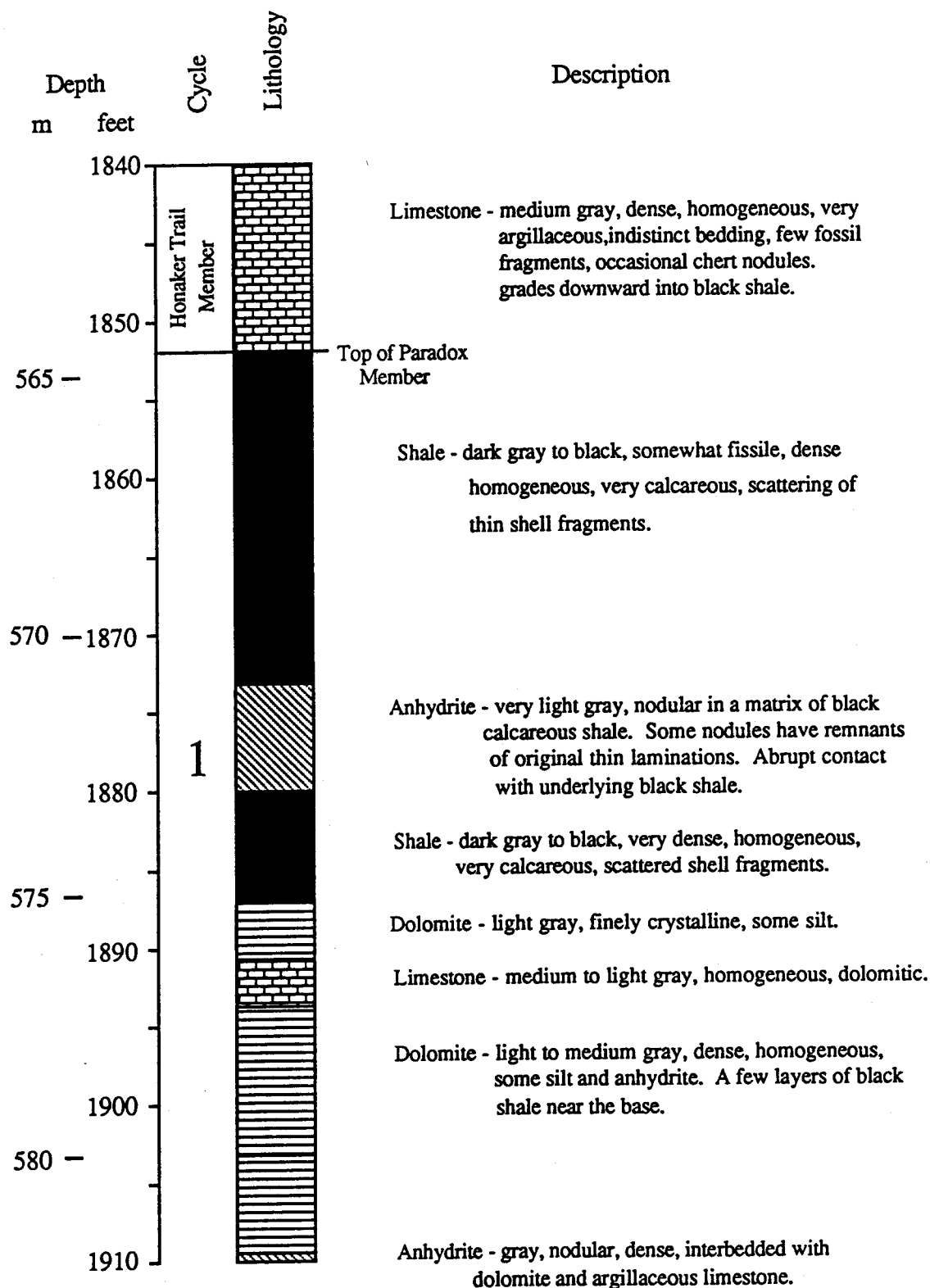
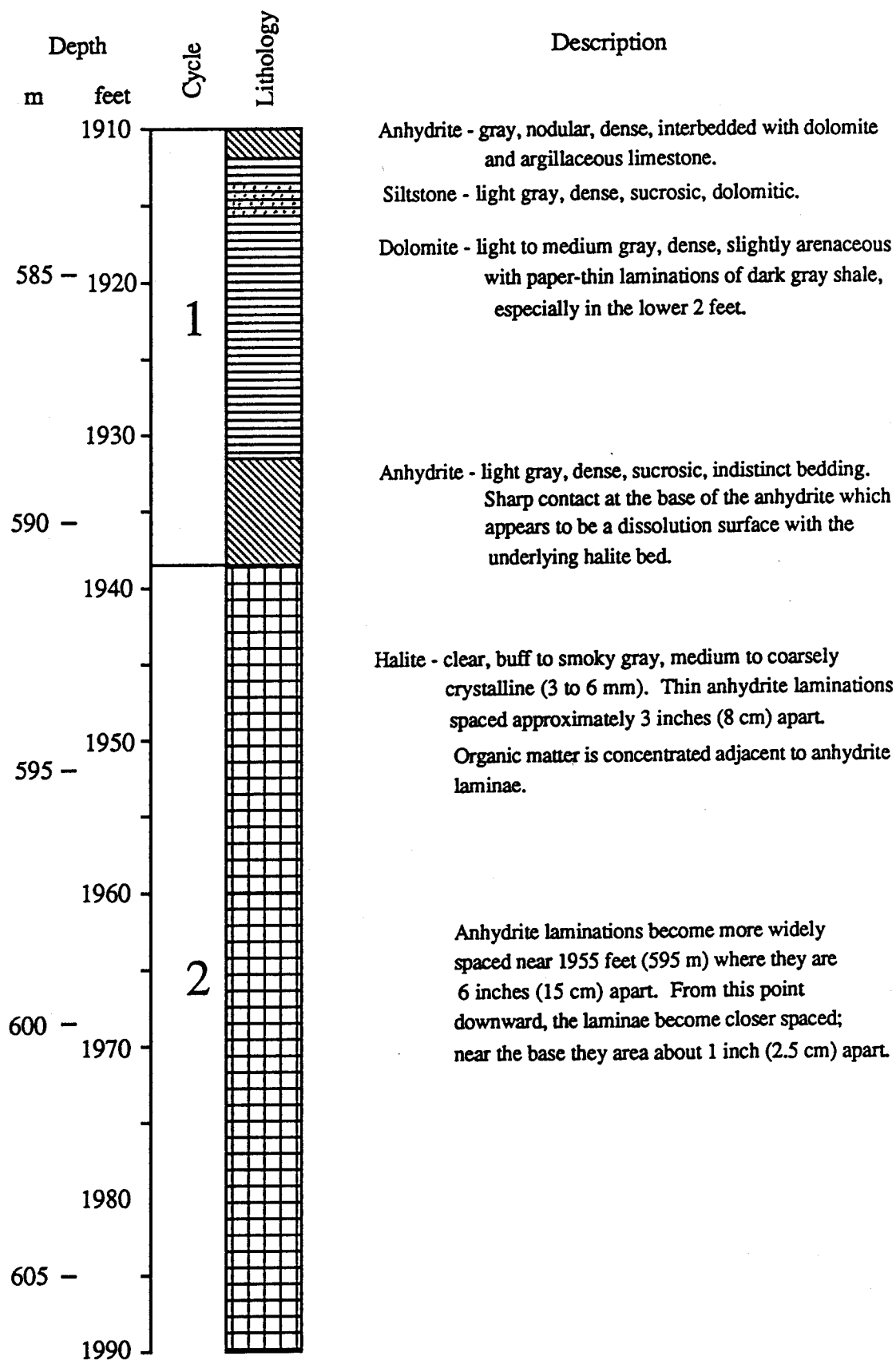


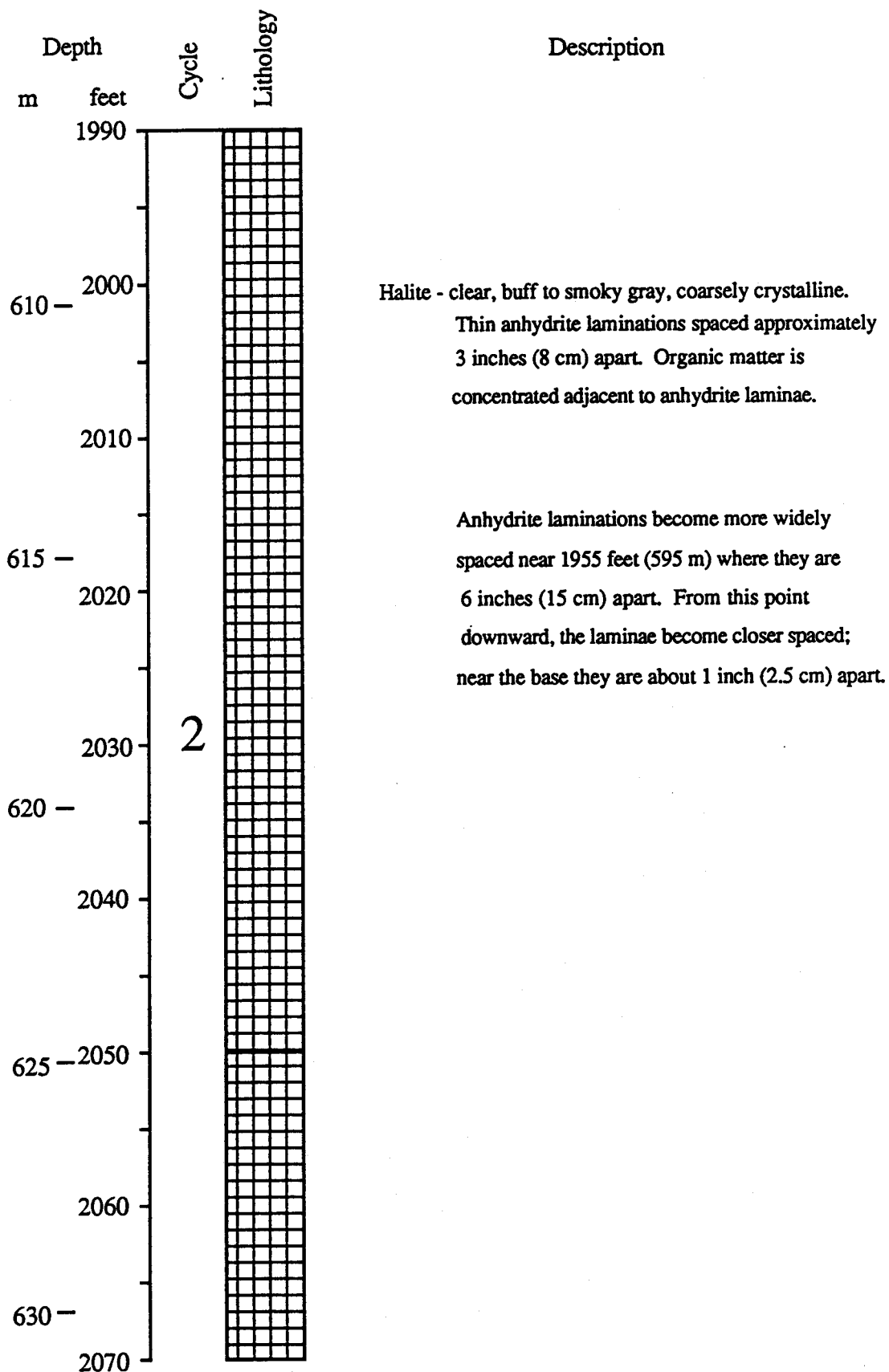
Figure 2. Generalized stratigraphic column of the Cane Creek No. 1 core at a scale of 200 ft / inch.

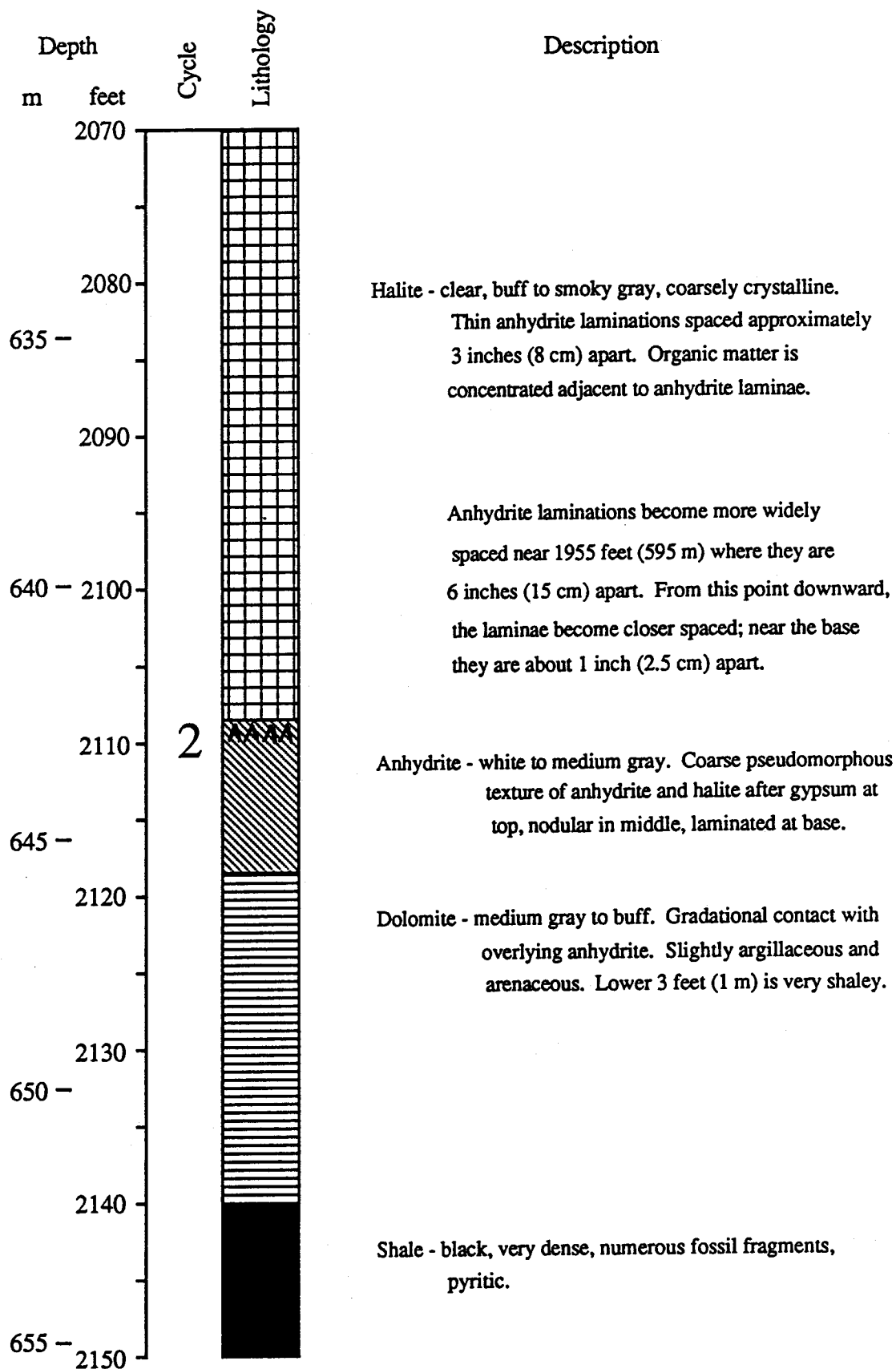
Figure 3.

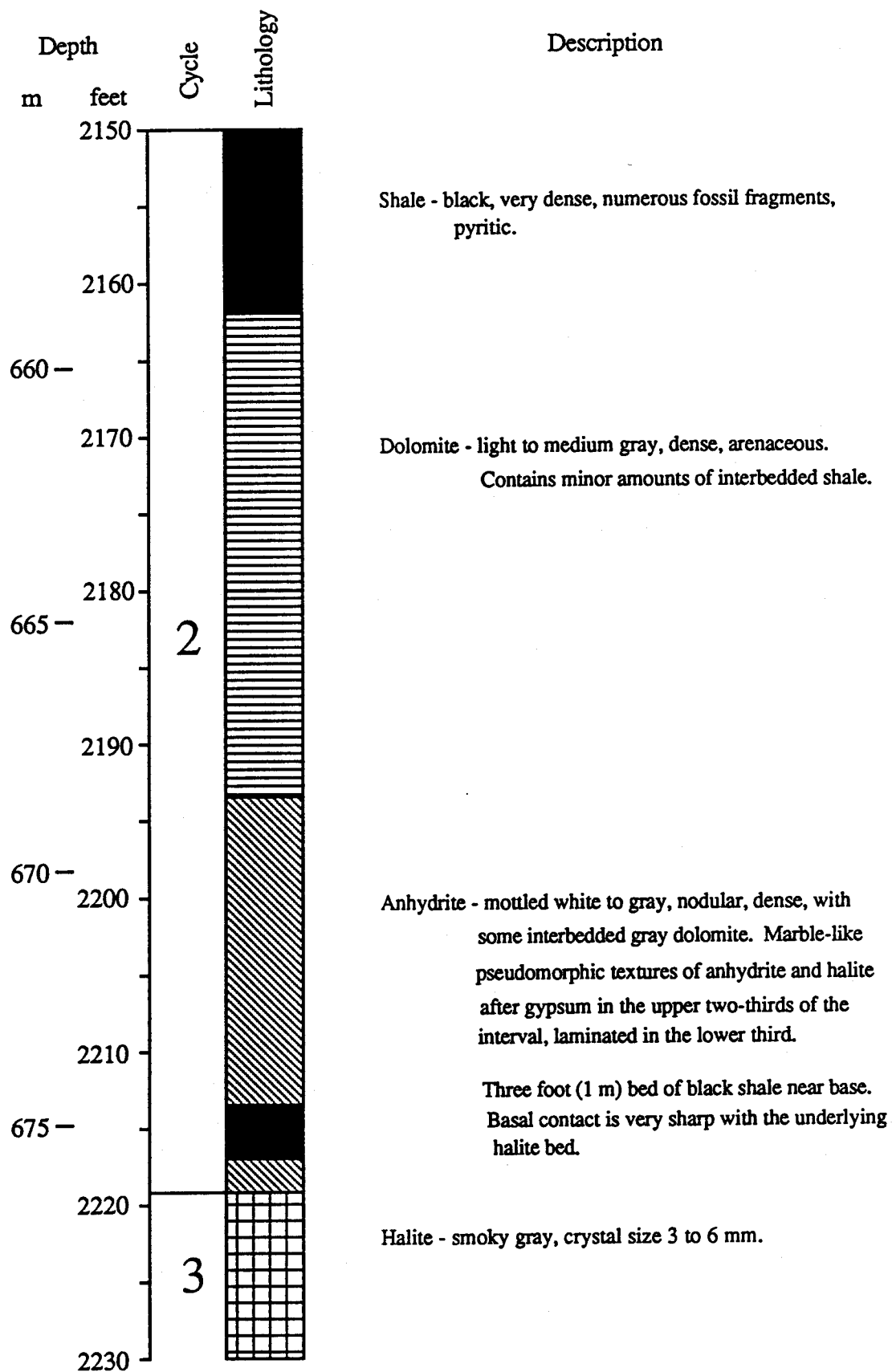
**Lithologic column of the Cane Creek No. 1 core
at a scale of 10 ft / inch, with a brief description of the
lithologies.**

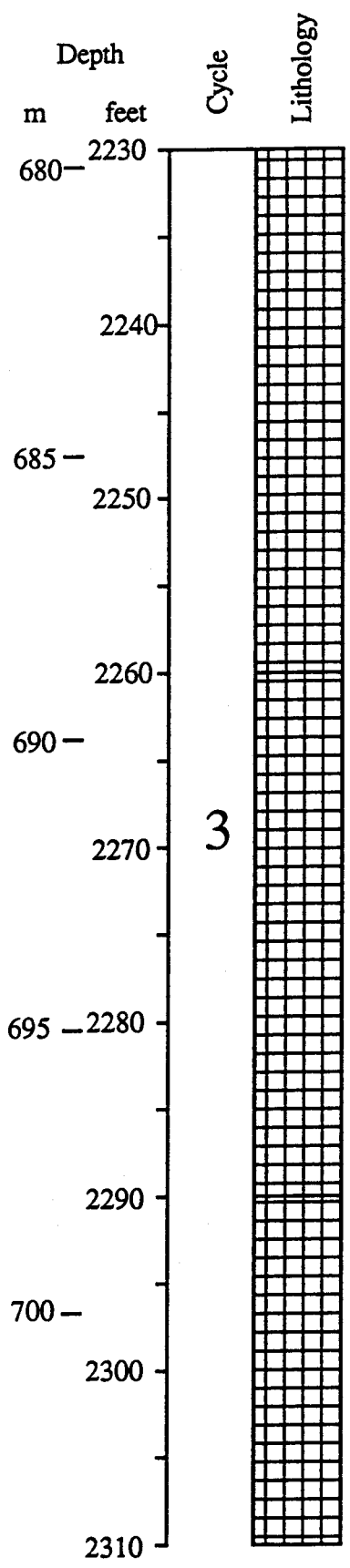








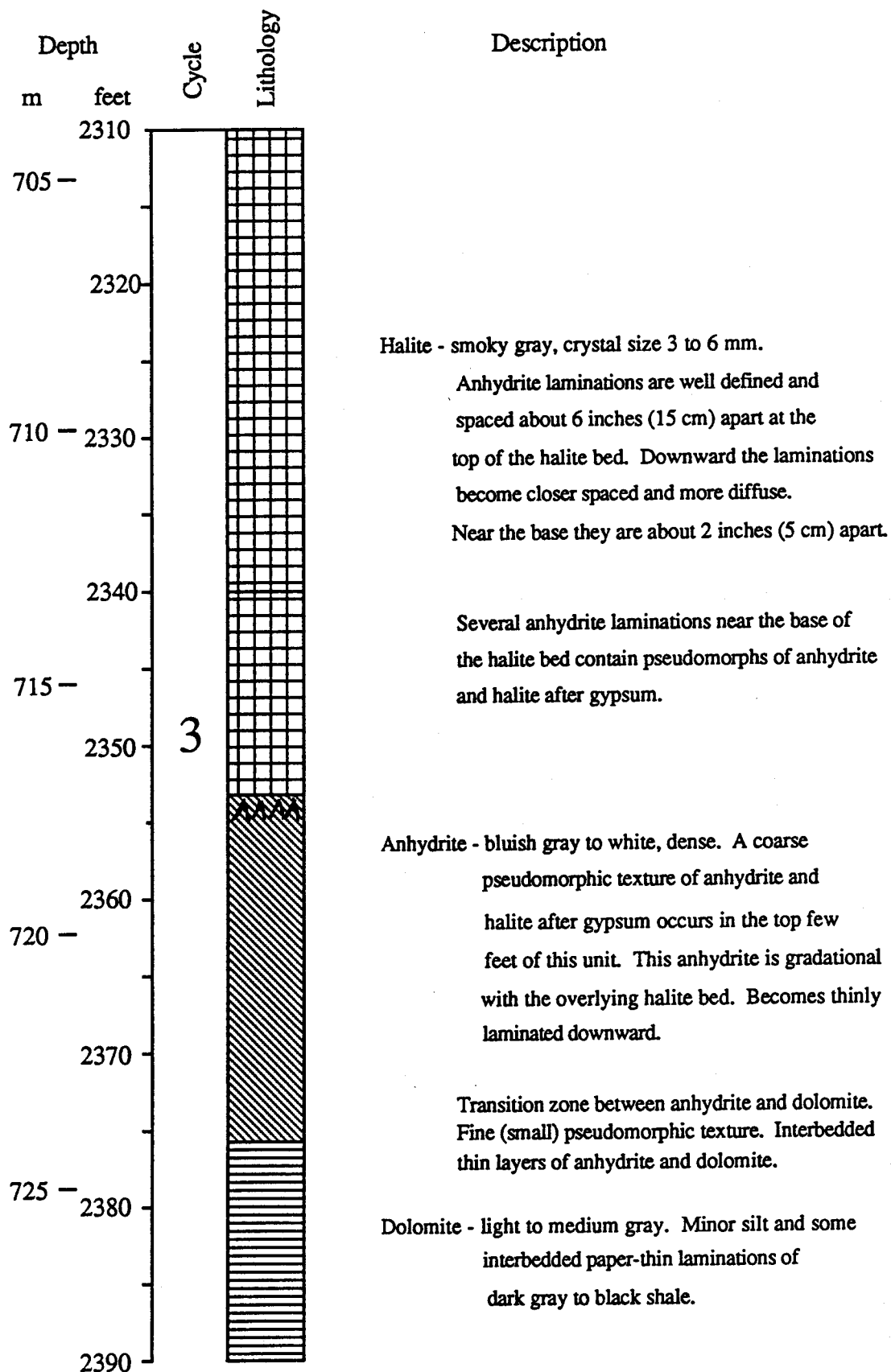


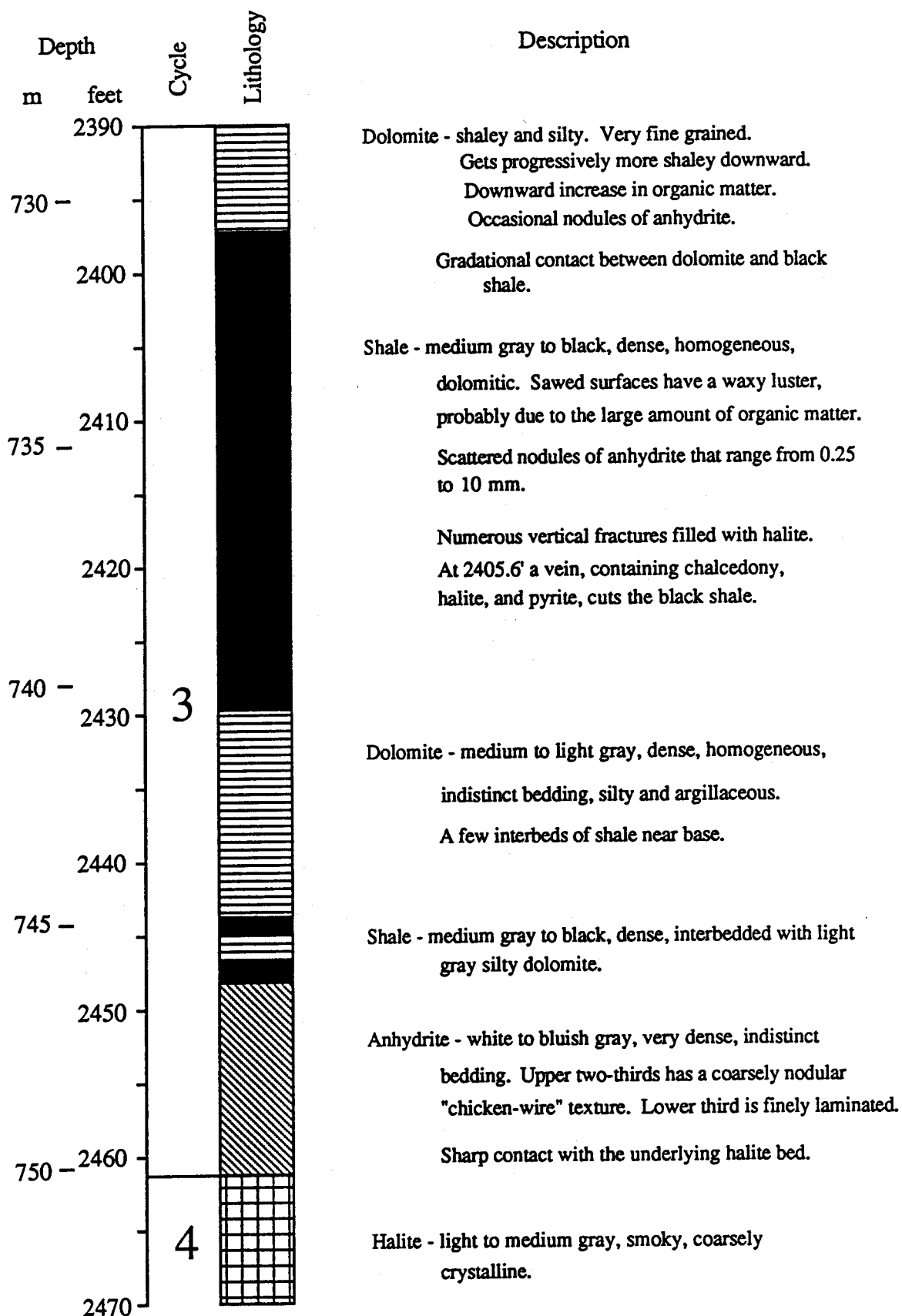


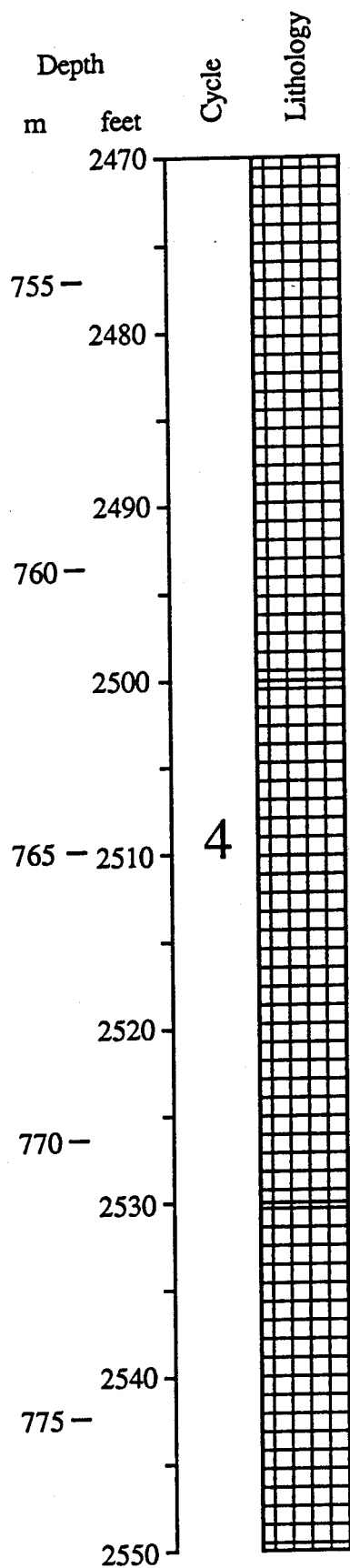
Description

Halite - smoky gray, crystal size 3 to 6 mm.

Anhydrite laminations are well defined and spaced about 6 inches (15 cm) apart at the top of the halite bed. Downward the laminations become closer spaced and more diffuse. Near the base they are about 2 inches (5 cm) apart.



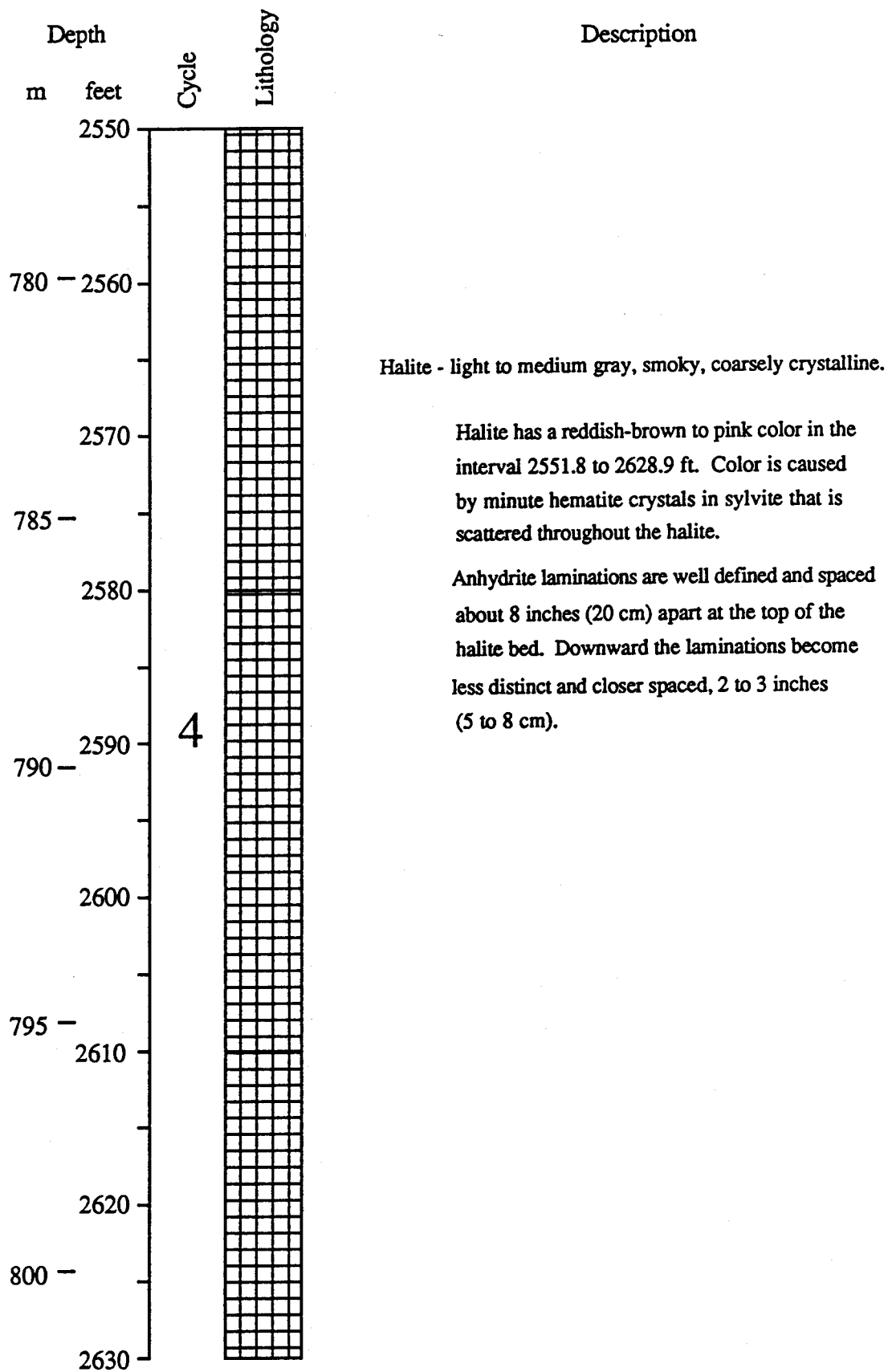


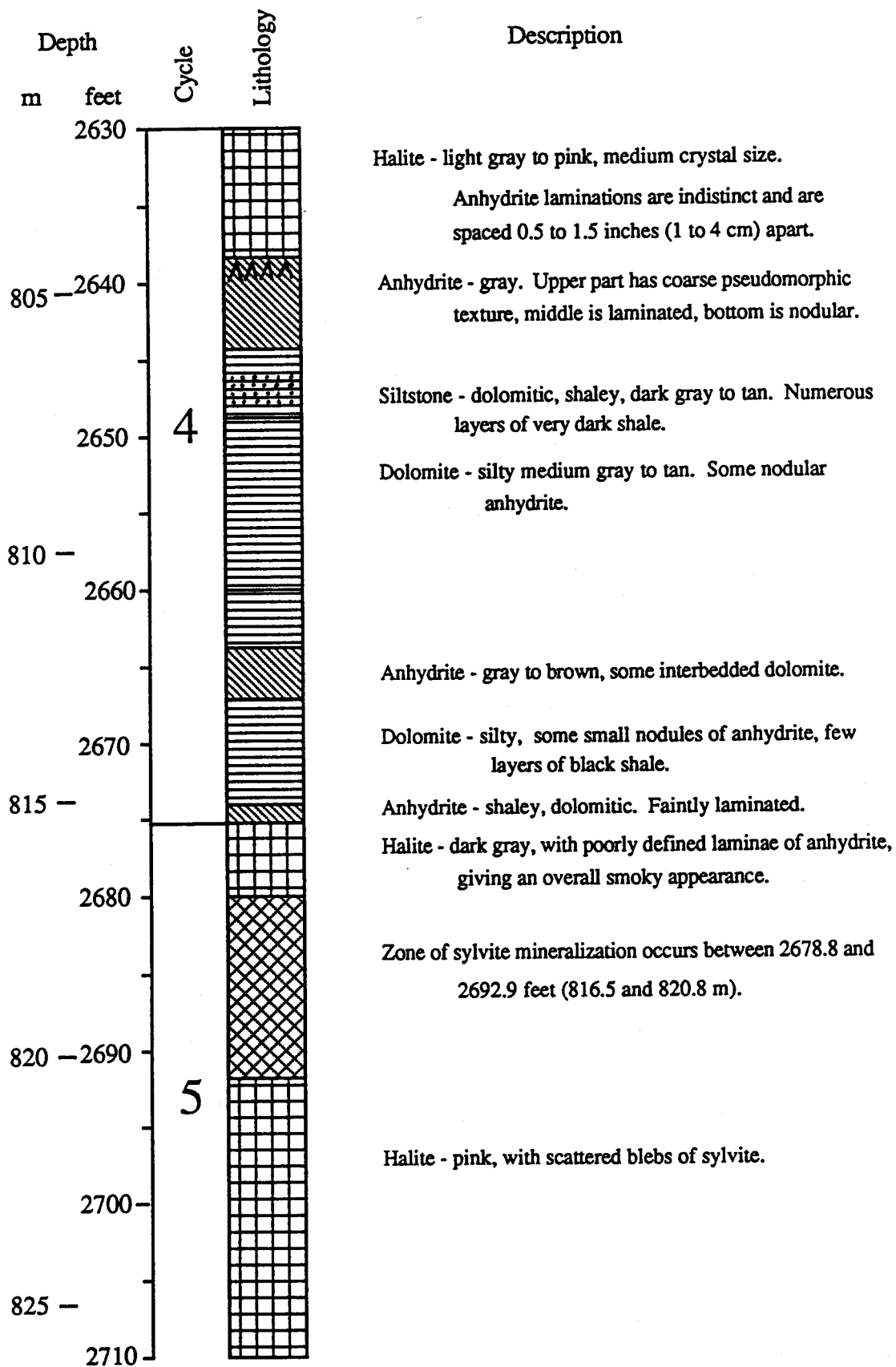


Description

Halite - light to medium gray, smoky, coarsely crystalline.

Anhydrite laminations are well defined and spaced about 8 inches (20 cm) apart at the top of the halite bed. Downward, the laminations become less distinct and closer spaced, 2 to 3 inches (5 to 8 cm).





Depth		Cycle	Lithology	Description
m	feet			
	2710	5		Halite - light gray to pink, with scattered blebs of sylvite.
	2720			Well developed anhydrite laminations that
	830 —			average 0.1 inch (3 mm) thick and are spaced
	2730			2 to 8 inches (5 to 20 cm) apart.
	2740			
835 —	2750			
	2760			
840 —	2770			
	2780			
845 —	2790			Anhydrite laminations are indistinct and are
				spaced 0.5 to 1.5 inches (1 to 4 cm) apart.

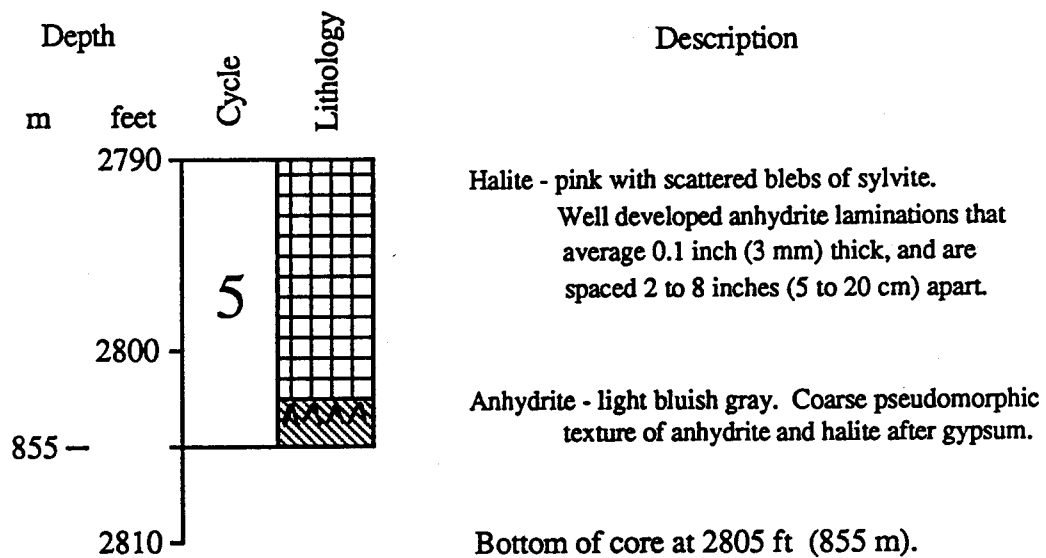


Figure 4. Mineral composition of the penesaline and clastic intervals in the Cane Creek No. 1 core determined by X-ray diffraction. Quantities of the minerals were determined semiquantitatively by comparing major peak heights to peak heights of prepared standards. The length of the histogram bars represent the ranges in amounts of the mineral components.

